Transport Canada Transports Canada

TP 1624

Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Investigation Report to the Minister pursuant to sections 542 or 545 of the Canada Shipping Act

Rapport d'investigation au Ministre conformément aux articles 542 ou 545 de la Loi sur la marine marchande du Canada

Canada

Ce rapport est aussi disponible en français.

REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE LOSS OVERBOARD OF TWO PERSONS FROM THE CANADIAN FISHING VESSEL "CLOUDBURST" IN THE VICINITY OF MAJOR BROWN ROCK, AT THE ENTRANCE TO RIVERS INLET, B.C. ON JULY 5, 1987.

REPORT No. 489

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REPORT OF INVESTIGATION INTO THE CIRCUMSTANCES ATTENDING THE LOSS OVERBOARD OF TWO PERSONS FROM THE CANADIAN FISHING VESSEL "CLOUDBURST" IN THE VICINITY OF MAJOR BROWN ROCK, AT THE ENTRANCE TO RIVERS INLET, B.C. ON JULY 5, 1987.

Particulars of Vessel

Name	"CLOUDBURST"
Official Number	372659
Port of Registry	Vancouver, B.C.
Call Sign	VY9969
Gross Tonnage	8.53
Net Tonnage	4.81
Length- Overall - Registered	9.59 m 8.50 m
Breadth	3.14 m
Depth	1.58 m
Draught (approximate)	F: 0.61 m A: 0.61 m
Type of Vessel	Small Fishing Vessel, Gillnetter
Material	Fibreglass
Built	1977, Farrell Boat Works Ltd., Nanoose Bay, B.C.
Propulsion	Caterpillar diesel, 6 cylinder, Model 3160, 210 b.h.p., driving a single fixed-pitch propeller, 9 knots
Cargo	1/2 ton ice
Crew	1
Guests	4
Owner	Dale George Montgomery, Victoria, B.C.,

Navigating Equipment

Radar	Furuno, Seascan
Echo Sounder	Furuno, colour video sounder
Loran C	
VHF R/T (Very high frequency radiotelephone)	Unimetrics, Sandpiper 25
CB R/T (Citizen Band radiotelephone)	Realistic, Model TRC 427
Magnetic Compass	Wagner
Autopilot	Wagner, connected to magnetic compass

Description of vessel

The "CLOUDBURST" is a small gillnetter built by the Farrell Boat Works of Nanoose, B.C. in 1977; her hull, fish hold, cabin, decks and flying bridge, are constructed of reinforced fibreglass.

The vessel's cabin area consisting of wheel-house, galley/ pantry area and accommodation, is located forward of amidships, and her fish hold, net drum and general work area are aft of amidships; there is a small open cockpit area at the stern. The engine compartment is located underneath the cabin with access via a flush hatch in the centre of the cabin deck.

The "CLOUDBURST" has four conning stations: the cabin, the flying bridge, the after starboard side of the cabin on the main deck and the port side of the cockpit. Each of the outside stations is equipped with a steering wheel, a throttle, and a gear shift.

The "CLOUDBURST" was not fitted with masts or outrigger poles.

Being under 15 gross tons, the "CLOUDBURST" was exempt from inspection by the Ship Safety Branch of the Canadian Coast Guard. The "CLOUDBURST" was last inspected out of the water for insurance purposes, at Saanich, B.C., December 6, 1985 at which time she was described as being in good condition.

Note: All times in this report are expressed in Pacific Daylight Saving Time (UTC minus 7 hours)

Background

The small gillnet fishing vessel "CLOUDBURST" departed Port Hardy, B.C. at about 1800, July 4 with five persons on board to participate in a salmon fishery opening at Rivers Inlet. The vessel's owner and a guest were travelling on board the "CLOUDBURST" en route to Duncanby Landing to pick up another vessel.

After dark on the evening of July 4, as the vessel proceeded in good weather conditions, three of the five persons on board the "CLOUDBURST" were in the cabin area whilst the owner and his guest sat outside on the fish hold hatch cover. They were last seen at 0030, July 5 when the vessel was off Dugout Rocks. Being a diesel-powered vessel, it was very noisy on board the "CLOUDBURST" particularly in the cabin and adjacent area.

At 0105, July 5, when approaching Duncanby Landing, the owner and his guest were discovered missing. The Canadian Coast Guard was informed immediately and the Rescue Coordination Centre (RCC) Victoria, directed a full-scale search for the missing persons to no avail; at the time of writing this report they remain missing and are presumed drowned.

Particulars of Missing Persons

1. Name : Dale Montgomery,

   Position aboard the vessel: Owner of the "CLOUDBURST" in transit to Duncanby Landing, B.C.

   Age : 40 years

   Address : Victoria, B.C.

2. Name : Drina Baxter,

   Position aboard the vessel: Guest, in transit to Duncanby Landing, B.C.,

   Age : 35 years

   Address : Sidney, B.C.

Narrative

The "CLOUDBURST" departed from Port Hardy, B.C., June 26, 1987 and proceeded to Rivers Inlet where she participated in the first salmon fishery opening of the 1987 season for gillnetters in fishing regulatory area No.9; the area was open from 1800, June 28 to 1800, July 1.

The "CLOUDBURST" fished in the same general vicinity as the "OCEAN BEGGAR" and the "ELUSIVE"; all three vessels belonged to the same owner. As fishing was poor during this first opening, the owner, who was operating the "OCEAN BEGGAR", decided to depart from Rivers Inlet early on board the "CLOUDBURST" and leave the other two vessels in the area for the next opening on July 5. All three vessels were refuelled at Dawson Landing on June 30.

On the morning of July 1, the gasoline-powered "ELUSIVE" and "OCEAN BEGGAR" were laid up, unmanned, at Duncanby Landing to conserve fuel and all personnel from both vessels which included the owner and his guest from the "OCEAN BEGGAR", boarded the "CLOUDBURST". The "CLOUDBURST" then departed from Duncanby Landing at 0930 with a total complement of six persons on board and secured at Port Hardy at 1600 that same day. All persons except the operator of the "CLOUDBURST" proceeded on leave.

During the period from July 1 to July 4, the operator of the "CLOUDBURST" washed the vessel down and loaded a half ton of ice in the fish hold in preparation for the next voyage. He also loaded provisions and topped up the diesel fuel oil tanks and the fresh water tank. On the morning of July 4, he listened to the marine weather forecast and as the forecast was favourable, he stowed two of the vessel's three gillnets on the flying bridge and the third on the drum, to give more space on the afterdeck for the journey to Rivers Inlet.

At about 1700, July 4, four persons rejoined the "CLOUDBURST" namely: the owner and his (same) guest from the previous trip who, along with a deck-hand/trainee operator, were bound for the "OCEAN BEGGAR", and also the operator of the "ELUSIVE". Since all three vessels are small, it is normal practice to have an operator as the sole person on board when salmon gillnetting.

The "CLOUDBURST" departed from Port Hardy at about 1800 July 4, with a total complement of five persons on board including the operator. The weather was reported to be fine and clear with a calm sea and light breeze and when the vessel was in the vicinity of Christie Pass a light meal was prepared for those on board.

During the course of the evening, the owner and his guest were reportedly in and out of the cabin a number of times and about 2200, while off Cape Caution, they climbed to the flying bridge for some fresh air making their way between the gillnets stowed there and sat at the flying bridge conning station. The vessel was described at this time as rolling slightly in a calm sea with a low westerly swell and all outside decks were dry.

At about 2230, the operator of the "CLOUDBURST" passed the conduct of the vessel to the operator of the "ELUSIVE" and took two cups of coffee to the flying bridge. The guest declined the offer of coffee and made her way below to the cabin once more and the operator and the owner remained on the flying bridge and consumed the coffee.

At about 2315 as darkness had set in, the owner and the operator returned to the wheel-house and the operator ascertained the vessel's position by radar and assumed conduct of the vessel once more. The "CLOUDBURST" continued at her service speed of approximately 9 knots at 2400 rpm and navigation was by radar distances off known points of land. The vessel was on hand steering and courses were being steered on known points of land while referring closely to the radar heading marker. The radar was mounted on the deckhead immediately adjacent to starboard of the steering position.

Between 2315 and 2345 the operator and his guest were reportedly in and out of the cabin area two more times. The owner offered to assist with the navigation, however as his assistance was not required, he left the wheel-house with his guest to sit on the port side of the fish hatch, leaving the aft door to the accommodation open. Due to the noise from the Caterpillar diesel under the cabin deck and the engine exhaust outside the cabin door, it was not possible for those inside the cabin to hear any conversation from the outside.

The operator, who was engrossed with the navigation of the vessel, did not see the owner nor his guest after they left the cabin at about 2345. The deck-hand/trainee operator from the "OCEAN BEGGAR" sat napping at the cabin table after dark and the operator of the "ELUSIVE" moved between the table and the conning position to lend some assistance with the navigation.

At 0030, July 5, with the "CLOUDBURST" in approximate position 51°22'52"N, 127°50'06"W (1.4 miles NWxW of Dugout Rocks), both the operator of the "ELUSIVE" and the deck-hand/trainee operator noticed the owner and his guest were still sitting on the port side of the fish hatch.

Shortly thereafter, the two crewmen dozed off while sitting at the cabin table.

Weather conditions existing at the time were reported to be:

Wind	Calm
Sea	Calm
Swell	Westerly
Visibility	10 miles +

The "CLOUDBURST" continued on her way generally keeping to about the middle of the entrance to Rivers Inlet. The vessel passed north of Major Brown Rock and south-west of Bull Island, and at about 0105, July 5, in approximate position 51°24'22"N, 127°39'00"W, the engine speed was reduced to an idle for the approach to Duncanby Landing. The two crew members from the "OCEAN BEGGAR" and the "ELUSIVE" who had been dozing at the cabin table, were instructed to prepare the lines for docking and it was then discovered that the owner and his guest were not on the afterdeck. A thorough search of the vessel was made to no avail and at 0108 the operator of the "CLOUDBURST" reported the incident to Bull Harbour Coast Guard Radio Station (CGRS) on VHF R/T, channel 16.

The "CLOUDBURST" was immediately turned around on a reciprocal course to that which she had been on and commenced searching for the owner and his guest utilizing the vessel's searchlight. She retraced the vessel's track and proceeded at a reduced speed making due allowance for the effects of the ebb tide.

At 0112 Bull Harbour CGRS broadcast an All Station Marine Information Broadcast (MIB) on VHF R/T channels 16 and 78 and also on MF (Medium Frequency) 2182 kHz.

At 0117 Bull Harbour CGRS informed RCC Victoria of the incident and RCC issued a 'MAYDAY' relay broadcast at 0120 on VHF channels 16 and 78 and MF 2182 kHz.

Two Department of Fisheries and Oceans (DFO) vessels, the "KITIMAT II" and the "CHILCO POST" which were located close to the area in Darby Channel in readiness for the salmon fishery opening, responded to the 'MAYDAY' relay, and at 0123 were tasked by RCC. The "CHILCO POST" was delegated On-Scene Commander (OSC) and as such, led the "KITIMAT II" and the two fishing vessels "CLOUDBURST" and "SUNRISE" in the search for the missing persons.

At 0259, July 5, the broadcast of "MAYDAY" relay messages was downgraded by RCC to an 'urgency'.

At 0329 RCC Victoria tasked the Canadian Coast Guard Cutter (CCGC) "READY" in Port Hardy to proceed to the scene and at 0335 tasked the Buffalo fixed-wing aircraft 'R454' of 442 Transport and Rescue Squadron based at the Canadian Forces Base (CFB) Comox. After a delay in taking off due to fog, the 'R454' arrived on scene at 0546. The CCGC "READY" arrived at the entrance to Rivers Inlet at 0549 and took over as OSC when she arrived on the scene at 0705.

RCC Victoria also tasked the Labrador helicopter 'R307' from 442 Squadron, CFB Comox which arrived on scene at 1231, July 5.

An area up to 3 miles offshore was searched between Blackney Island off the south-west tip of Calvert Island, south to Cape Caution, thence north to Turner Island. The search area also included all waters and shoreline in the Rivers Inlet area from Turner Island north-east to as far north as Florence Island, thence south-west around the mainland to Cape Calvert and north-west to Blackney Island.

The three persons remaining on board the "CLOUDBURST" continued searching until about 0800, July 5 after which time they secured at Duncanby Landing at approximately 1000. They stood by to assist the Royal Canadian Mounted Police (RCMP) with their investigation into the incident. Due to unfavourable weather conditions in Bella Bella, the RCMP were unable to fly to Duncanby Landing until the morning of July 6.

At 1500, July 5, all search units, with the exception of the CCGC "READY", were stood down and the incident was turned over to the RCMP as 'a missing persons' case.

The "READY" ceased searching after dark on July 5 and resumed again at daybreak, July 6 until 0640, when she was tasked to proceed on another search and rescue (SAR) mission.

The "CLOUDBURST" departed from Duncanby Landing at 1400, July 6 and arrived in Port Hardy at 2100 that same day.

At the time of writing this report, Dale Montgomery and Drina Baxter remain missing and are presumed drowned.

Analysis

1. Navigation appliances & machinery

The navigation appliances and steering gear on the "CLOUDBURST" were in good working order during the

vessel's passage from Port Hardy and there was no reported malfunction of the vessel's machinery and no sudden stops or jolts which may have caused an individual to lose his or her footing. The automatic pilot was disconnected awaiting servicing and the vessel was on hand steering throughout.

2. **Radar**

The "CLOUDBURST" was being navigated by radar distances off known points of land, however, it is impossible to reconstruct the exact track taken by the vessel on the evening of July 4 and the morning of July 5, as no positions or courses were being plotted on the chart nor were times of course and speed alterations being recorded.

The vessel had Canadian Hydrographic Service (CHS) charts for the area on board and a cruising atlas for ready reference.

The 0030, July 5 position as given in this report and the track followed, as shown on the section of CHS chart No.3778 at the end of this report, are best estimates made after the incident. The vessel travelled approximately 9 miles from the time the owner and his guest were last seen until their disappearance was discovered.

3. **Weather**

The marine forecast for Queen Charlotte Sound, issued by Environment Canada at 1745, July 4, 1987, and valid until 1800 July 5, was as follows:

> QUEEN CHARLOTTE SOUND
>
> Winds northwesterly 10 to 20 knots easing to 5 to 15 tonight, cloudy, isolated showers.
> Outlook- Moderate southwesterly winds.

The following weather observations were recorded at Egg Island Light Station:

July 04 - 2030	Overcast, Wind north-westerly 8 knots, rippled sea, low westerly swell, visibility 15 miles+
July 04 - 2330	Overcast, Wind north-westerly 10 knots, rippled sea, low westerly swell, visibility 12 miles

July 05 - 0830 Overcast, Wind north-westerly 6 knots, rippled sea, low westerly swell, visibility 15 miles +

At 0238, the DFO vessel "CHILCO POST" reported the weather conditions in Rivers Inlet as being light various winds, rippled sea and visibility 4 miles.

At 0705, the CCGC "READY" then reported the weather conditions in Rivers Inlet as being south-westerly winds at 10 knots with a light choppy sea and visibility 15 miles.

4. Tides

Tidal differences for Egg Island are referenced on Bella Bella and are given in the Canadian Tide and Current Tables, Volume 6.

On July 4, 1987 high water at Egg Island was predicted to be at 1935 with a height of 3.66 m above chart datum and the next low water was predicted to be at 0222, July 5, with a height of 1.62 m above chart datum.

At the approaches to Rivers Inlet, the tidal stream is generally in a westerly or outward direction during the ebb tide with a maximum speed of flow of approximately 1 knot.

There is an outward flow of cold fresh water from Rivers Inlet which remains at the surface and during the incoming flood tide a body would tend to be drawn under water and dragged into Rivers Inlet with the salt water tidal flow underneath the fresh water.

5. Alcohol

The Canadian Defence and Civil Institute of Environmental Medicine (DCIEM) Technical Memorandum No.848, A Brief Guide to the Units and the Interpretation of Blood Alcohol Measurements is one of a number of accepted standards concerning the effect of alcohol on the human body. It indicates that blood/ethanol concentrations for average situations for a 68 kg (150 lb) person at the absorptive stage who is a moderate drinker and who consumes six bottles of beer, is 150 MGM% (mgm/100 mL), and the person is probably 'under the influence'. Above 150 MGM%, the person is certainly 'under the influence', and at 200 MGM%, stumbling and falling occurs. (Annex II)

Both missing persons from the "CLOUDBURST" were reported to have commenced drinking about 1300, July 4, prior to boarding the vessel, and reportedly consumed a quantity of beer in excess of 6 bottles each during the course of the afternoon and evening. They also consumed some wine when the light meal was served in the vicinity of Christie Pass and the owner's guest reportedly did not eat at this time. The guest had obtained a prescription on July 3, 1987 for tranquilizers to assist in a program to stop smoking.

On boarding the vessel, the guest slipped, cutting her lip and had to be assisted.

While both were argumentative and disgruntled with each other during the day and early part of the evening, they had apparently settled their differences when last seen.

6. **Cold water survival (See Annex I- Cold Water Survival Chart)**

Scientific studies of cooling rates on an average person holding still in ocean water of 13.5°C and wearing a standard lifejacket and light clothing show a predicted survival time of 2.5 to 3 hours; extra body fat can increase this time. Alcohol dilates blood vessels causing additional heat loss.

The owner was described as having been 1.83 m tall and weighing approximately 82 kg. He was reportedly a good strong swimmer and in good medical health. At the time of the casualty he was wearing a gray melton pea-jacket, T-shirt, blue jeans and runners.

The missing guest was female and was described as being 1.57 m tall and weighing approximately 50 kg. She was reported to be in good medical health. At the time of the casualty she was wearing faded blue jeans and jacket, a blouse and sandals.

In this instance, the water in the area was reported to be about 13.5°C and neither missing person was wearing a lifejacket.

7. **Noise**

The Caterpillar diesel is located in the engine compartment below the cabin area and the exhaust stack and engine-room vents lead out to the afterdeck behind the cabin resulting in the cabin and deck area immediately adjacent to the cabin being very noisy when the vessel

is underway. The aft door to the accommodation was left open during the evening of July 4 and morning of July 5.

8. Hull shape

The "CLOUDBURST" did not have a displacement hull and she reportedly had a tendency to pitch, rather than to roll. However, during the evening of July 4 and the morning of July 5, as the "CLOUDBURST" made her way through the calm seas and low westerly swell, these conditions produced a very easy roll.

The "CLOUDBURST" reportedly was not shipping seas on board and her decks were dry.

9. Afterdeck arrangement (See Fig.No.1)

Being a small commercial fishing vessel, the afterdeck work area on the "CLOUDBURST" is small with numerous rises and stepdowns in the deck and other hazards that require that a person be sure-footed and agile, especially when moving around the vessel after dark.

Some factors in particular that illustrate the necessity to be cautious are:

(i) There is a 330 mm stepdown from the afterdeck to enter the cabin.

(ii) The gunwhales are only 130 mm in height with 710 mm high handrails around the afterdeck area. The handrails are constructed of 38 mm diameter aluminum pipe.

(iii) There is a 127 mm rise from the afterdeck to the bait hatch covers. The bait hatch covers are painted with white gloss paint which is not non-skid.

(iv) The cockpit is sunk 660 mm from the level of the bait hatch covers. Inside the cockpit there is a pedal on the deck for operating the hydraulic gillnet drum; the pedal extends 1.54 m athwartships and is 170 mm in width. Also, on the deck in the cockpit, is a 3.7 m length of washdown hose running to the fresh water tank air vent on the port side.

(v) Deck areas around the fish hold are small with only 1 m from the fish hold coaming to the gunwhale. Forward and aft of the fish hold

there is little space to manoeuvre with the fore part having exhaust vents jutting out from the cabin and the after part having a space of only 450 mm between hatch coaming and gillnet drum.

(vi) The walkway to port and starboard of the cabin is only 368 mm in width with only a grab rail on the side of the cabin and no outboard rails. There is a small rise in the deck from the afterdeck to the walkway.

10. Toilet arrangements

The vessel was equipped with a small toilet situated on the after starboard side of the cabin but it was not unusual for male members aboard to relieve themselves overboard from the afterdeck.

11. Survival/Distress equipment

Lifejackets:	A sufficient number of lifejackets were carried on board. The missing persons were not wearing lifejackets when last seen.
Lifebuoy:	The vessel was equipped with a lifebuoy with line attached, fitted on the port outboard side of the cabin.
Liferaft:	None required by regulation and none carried.
EPIRB:	None required by regulation and none fitted.
Immersion suits:	Although none were required by regulation, two were carried on board.
Lifeboat:	A 2.13 m plastic boat was carried on a ramp above the gillnet drum.
Radiotelephone:	The vessel carried a VHF R/T and a Citizen Band R/T. The message reporting persons missing was broadcast on VHF R/T, channel 16.

12. Radio licence

Under the Ship Station Radio Regulations made pursuant to the Canada Shipping Act, the "CLOUDBURST" was not required to be equipped with a VHF R/T installation however, since one was fitted, the radio station was required to be properly licensed and the operator to hold a Restricted Radiotelephone Operator's Certificate (RROC) under the General Radio Regulations made pursuant to the Radio Act. In this case, the VHF radio station was not licensed and neither the owner nor the operator held a certificate allowing him to operate the radio station.

13. Search and Rescue

The following units took part in the search for the missing persons and were tasked as follows, on the morning of July 5, 1987:

0108 The "CLOUDBURST" began searching immediately the two persons were found to be missing.

0115 The fishing vessels "BONNIE GALE" and "SUNRISE"

0123 DFO vessels "CHILCO POST" and "KITIMAT II"

0329 CCGC "READY"

0335 Buffalo aircraft 'R454' from 442 Squadron, CFB, Comox

1231 Labrador helicopter 'R307' from 442 Squadron, CFB, Comox

All search units with the exception of the CCGC "READY" were stood down at 1500, July 5. The CCGC "READY" searched until dark and again from first light, July 6, until 0640.

14. Experience and qualifications of personnel

(a) The operator of the "CLOUDBURST" does not hold a Certificate of Competency from the Department of Transport nor was he obliged to hold such a certificate to operate the vessel.

He is a school teacher by profession and had worked for three summers on small fishing vessels, sailing as operator for two months.

(b) The owner of the "CLOUDBURST", one of the missing persons, was en route to Duncanby Landing to operate another of his vessels called the "OCEAN BEGGAR". He did not hold a Certificate of Competency from the Department of Transport nor was he obliged to in order to operate any of his three vessels. He was a school teacher by profession who had fished commercially during the gillnet season for 10 years and on acquiring a halibut licence in addition to his salmon licence, took up full time fishing two years ago.

(c) The operator of the fishing vessel "ELUSIVE" was en route to Duncanby Landing to join his vessel. He did not hold a Certificate of Competency from the Department of Transport nor was he obliged to in order to operate the "ELUSIVE".

(d) The deck-hand/trainee operator of the fishing vessel "OCEAN BEGGAR" was en route to Duncanby Landing to join the "OCEAN BEGGAR". He had been fishing for 3 weeks only and recently completed a 6 1/2 months course in commercial diving which course included seamanship and navigation training.

(e) The missing guest, Drina Baxter was a school teacher by profession who had been on several fishing trips as a guest only.

Findings

On the early morning of July 5, 1987, during the hours of darkness, two persons were lost overboard from the Canadian fishing vessel "CLOUDBURST" at the entrance to Rivers Inlet, in the vicinity of Major Brown Rock.

In the absence of any witnesses, the precise cause for their fall overboard is not known but it would appear that the following factors contributed to the accident:

- both missing persons had consumed alcohol during the course of the afternoon and evening of July 4, 1987 and the guest had possibly also taken tranquilizers. However, since no autopsies, or other medical evidence, are available, the extent to which alcohol or drugs may have been a contributing factor cannot be ascertained;

- the deck space on the small commercial vessel is compact and requires a person to be agile and sure-footed; and

- the noise emanating from the diesel engine would have prevented any calls for help from being heard inside the cabin.

It would appear that, having fallen overboard, they lost their lives due to the following contributory factors:

- there was a lapse of up to 38 minutes before the victims were discovered missing;

- the cold water temperature limited their survival time to between 2½-3 hours had they been wearing a lifejacket;

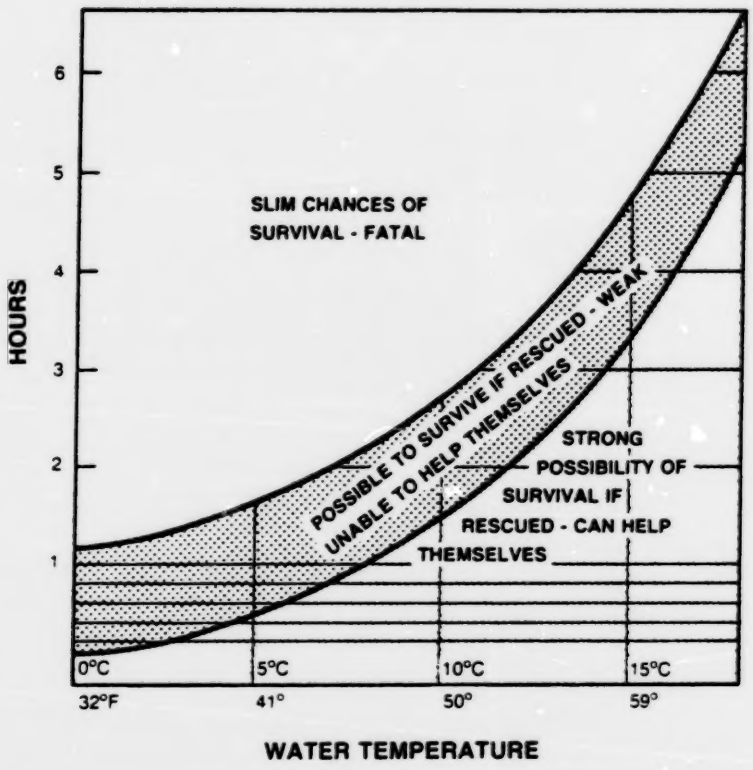
- as the weather was fair, neither of them wore any form of flotation device thereby further reducing their survival time; and

- additional loss of body heat due to the consumption of alcohol further reduced their survival time.

OTTAWA, ONTARIO
OCTOBER, 1987.

ANNEX I

COLD WATER SURVIVAL



The accompanying graph shows average predicted survival times of average adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C (50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.

"COLD WATER SURVIVAL"
CANADIAN RED CROSS

ANNEX II

A BRIEF GUIDE TO THE UNITS AND THE INTERPRETATION OF BLOOD ALCOHOL MEASUREMENTS

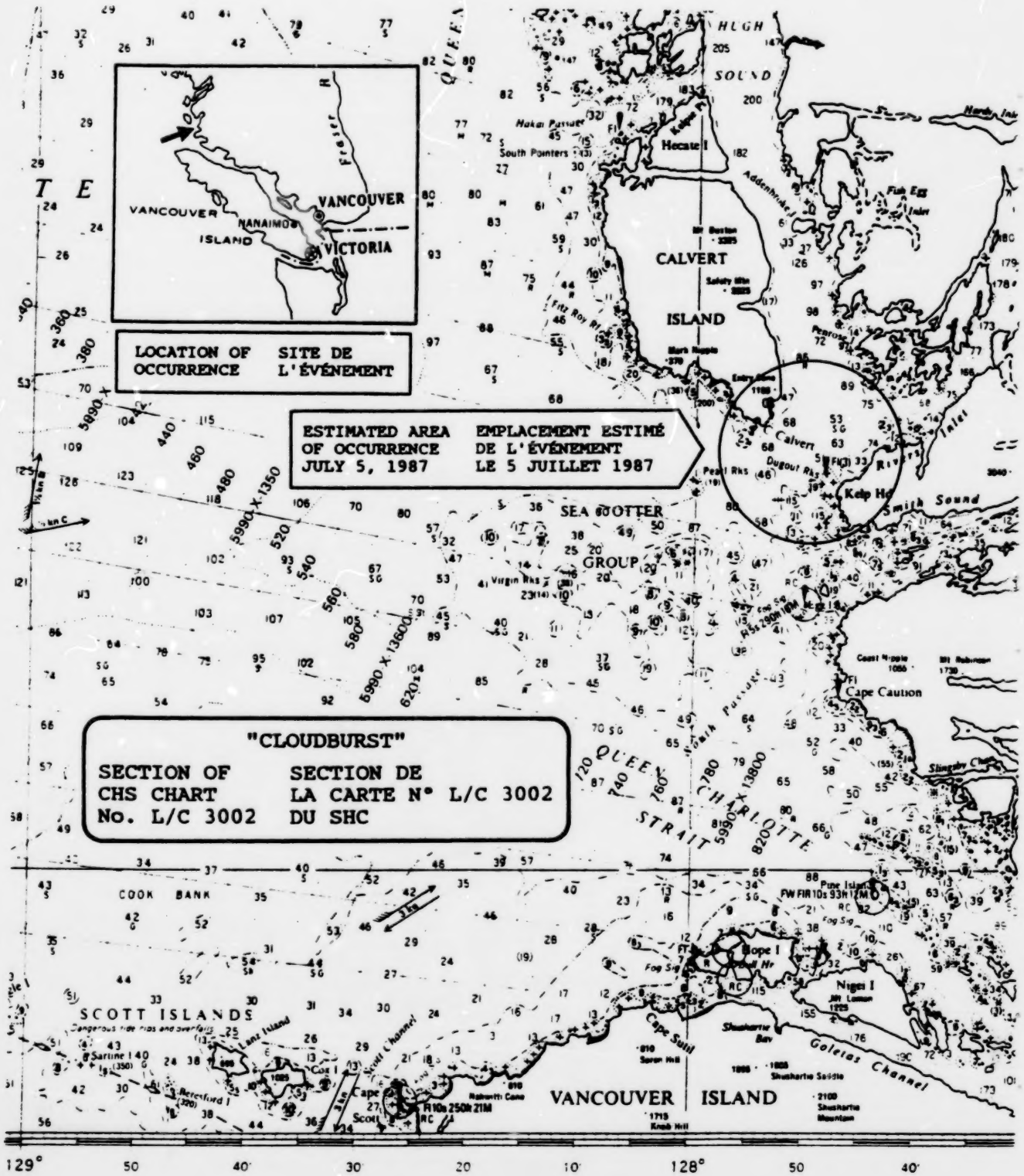
BY

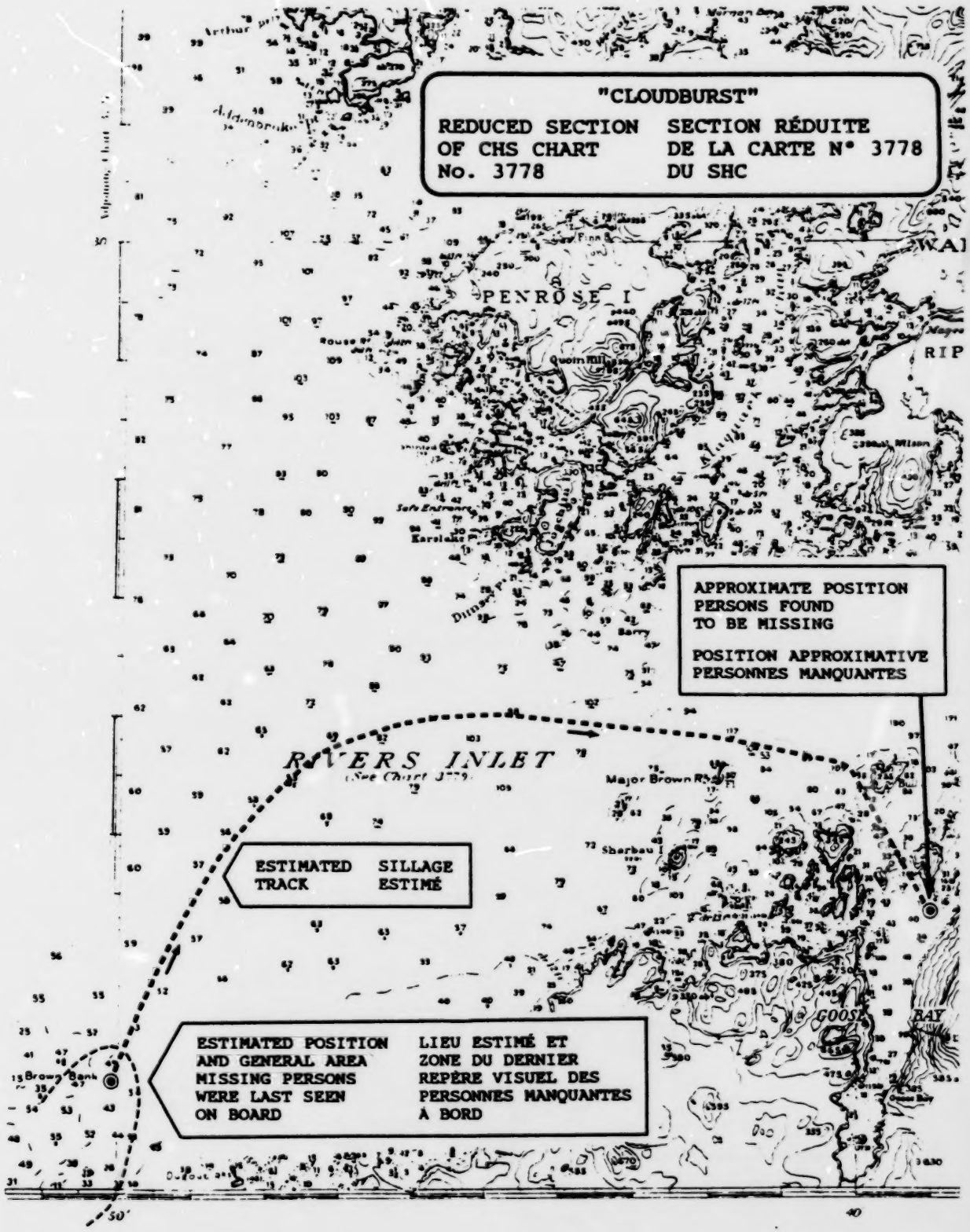
Operational Life Support Unit
DEFENCE AND CIVIL INSTITUTE OF ENVIRONMENTAL MEDICINE
1133 Sheppard Avenue West, P.O. Box 2000
DOWNSVIEW, Ontario

TABLE 2

BLOOD ETHANOL CONCENTRATIONS AND EFFECT ON PERFORMANCE[1,3,4,5]
(ABSORPTIVE STAGE, 150 LB PERSON, MODERATE DRINKER, UNLESS OTHERWISE STATED)

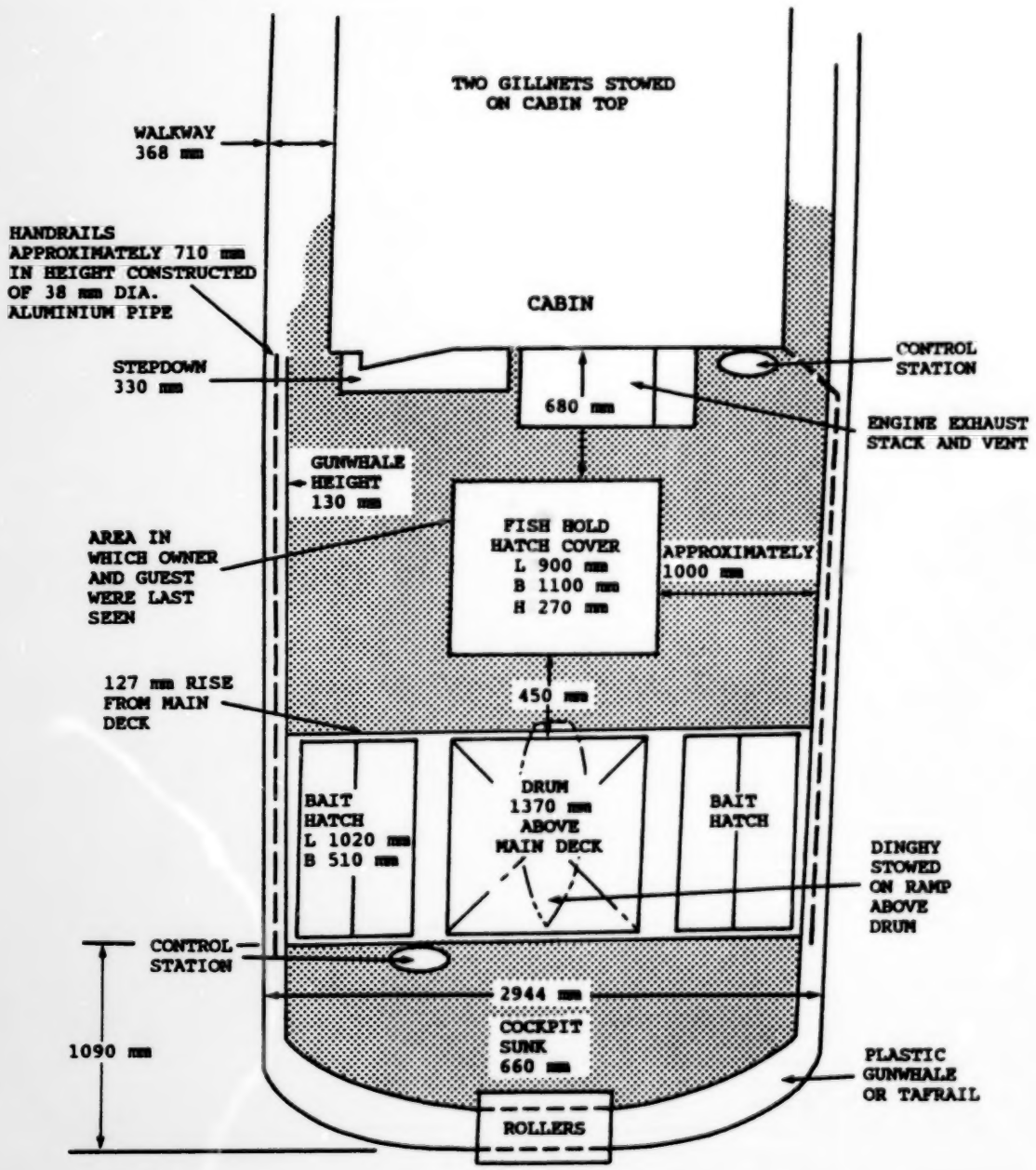
12-18 FLUID OZ. *PURE* ALCOHOL TAKEN IN SHORT PERIOD OF TIME	600 MGM %		FATAL
	650 MGM %	Approx. upper limit	"UNDER THE INFLUENCE"
	600 MGM %	"Dead drunk"	
	450 MGM %	Possible coma, general anesthesia	
	400 MGM %	Stupor	
	300 MGM %	Confusion, gross incoordination	
	250 MGM %	Possible sedation, sleep	
	200 MGM %	Stumbling and falling	
6 OZ. WHISKEY OR 6 BOTTLES BEER	150 MGM %	Above 150, certainly "under the influence", possible gross evidence of intoxication, incoordination, increase of 30 % in reaction time	PROBABLY "UNDER THE INFLUENCE"
	120 MGM %	Observable speech impairment	
	100 MGM %	Denmark penalizes all drivers above 100	
	80 MGM %	Sweden and Ontario penalize all drivers above 80	POSSIBLY "UNDER THE INFLUENCE"
2 OZ. WHISKEY OR 2 BOTTLES BEER	50 MGM %	Norway penalizes all drivers above 50, slight impairment for complex tasks, increase of 10% in reaction time	PROBABLY NOT "UNDER THE INFLUENCE"
	40 MGM %	Reduction in visual acuity for heavy drinkers, 30% impairment of "precision" driving ability	
	30 MGM %	Reduction in visual acuity for moderate drinkers	
	20 MGM %	Reduction in visual acuity for abstainers	
	1 MGM %	"Normal" body content less than 1 MGM %	


VANCOUVER
NANAIMO
ISLAND
VICTORIA
Fraser R
LOCATION OF OCCURRENCE
SITE DE L'ÉVÉNEMENT
ESTIMATED AREA OF OCCURRENCE JULY 5, 1987
EMPLACEMENT ESTIMÉ DE L'ÉVÉNEMENT LE 5 JUILLET 1987
"CLOUDBURST"
SECTION OF CHS CHART No. L/C 3002
SECTION DE LA CARTE N° L/C 3002 DU SHC
CALVERT ISLAND
Hecate I
SEA OTTER GROUP
Cape Caution
QUEEN CHARLOTTE STRAIT
COOK BANK
SCOTT ISLANDS
VANCOUVER ISLAND
Cape Scott
Goletas Channel
Smith Sound
Kelp Hd
Pearse I
Nigei I
Cape Sutil
129°
128°

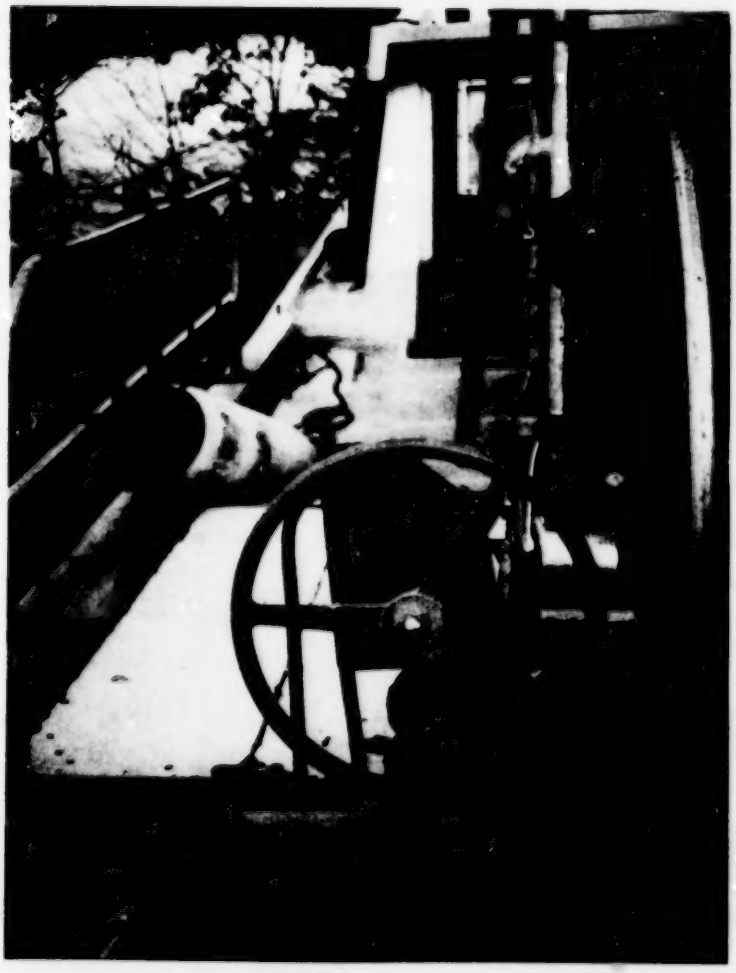

"CLOUDBURST"
REDUCED SECTION OF CHS CHART No. 3778
SECTION RÉDUITE DE LA CARTE N° 3778 DU SHC
PENROSE I
RIP
APPROXIMATE POSITION PERSONS FOUND TO BE MISSING
POSITION APPROXIMATIVE PERSONNES MANQUANTES
RIVERS INLET
(See Chart 3779)
Major Brown R.
Sherbau I
ESTIMATED TRACK
SILLAGE ESTIMÉ
GOOSE BAY
Brown Bank
ESTIMATED POSITION AND GENERAL AREA MISSING PERSONS WERE LAST SEEN ON BOARD
LIEU ESTIMÉ ET ZONE DU DERNIER REPÈRE VISUEL DES PERSONNES MANQUANTES À BORD

"CLOUDBURST"
AFTERDECK ARRANGEMENT

NOT TO SCALE

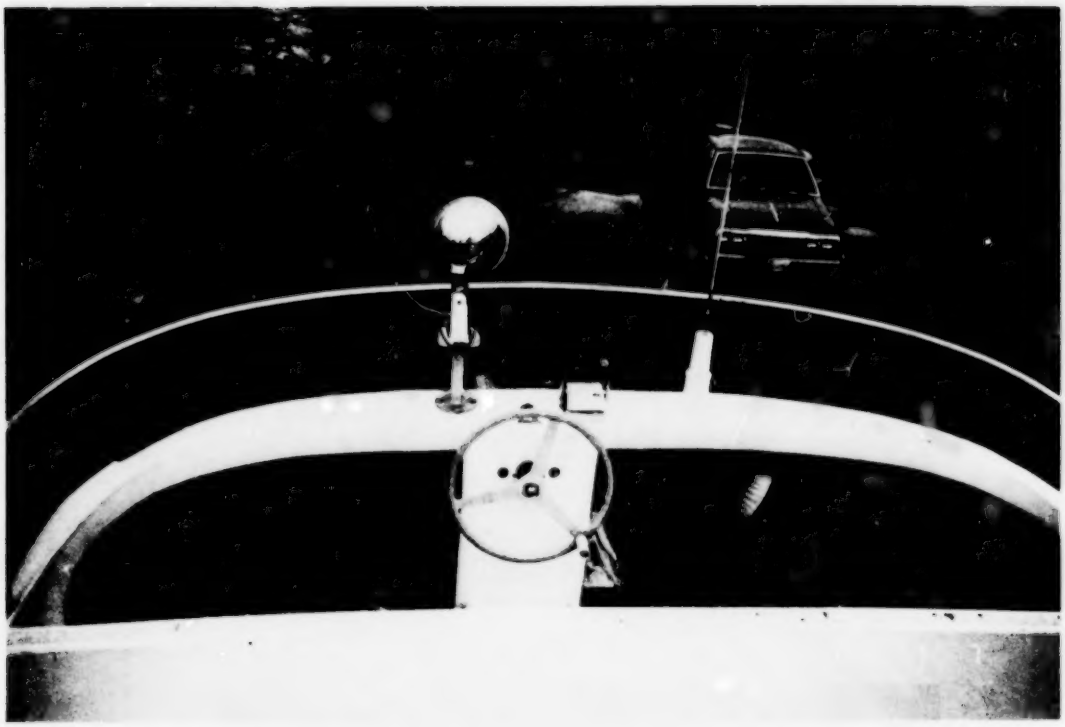

TWO GILLNETS STOWED ON CABIN TOP
WALKWAY 368 mm
HANDRAILS APPROXIMATELY 710 mm IN HEIGHT CONSTRUCTED OF 38 mm DIA. ALUMINIUM PIPE
CABIN
STEPDOWN 330 mm
680 mm
CONTROL STATION
ENGINE EXHAUST STACK AND VENT
GUNWHALE HEIGHT 130 mm
AREA IN WHICH OWNER AND GUEST WERE LAST SEEN
FISH HOLD HATCH COVER L 900 mm B 1100 mm H 270 mm
APPROXIMATELY 1000 mm
127 mm RISE FROM MAIN DECK
450 mm
BAIT HATCH L 1020 mm B 510 mm
DRUM 1370 mm ABOVE MAIN DECK
BAIT HATCH
DINGHY STOWED ON RAMP ABOVE DRUM
CONTROL STATION
2944 mm
1090 mm
COCKPIT SUNK 660 mm
PLASTIC GUNWHALE OR TAFRAIL
ROLLERS

"CLOUDBURST"

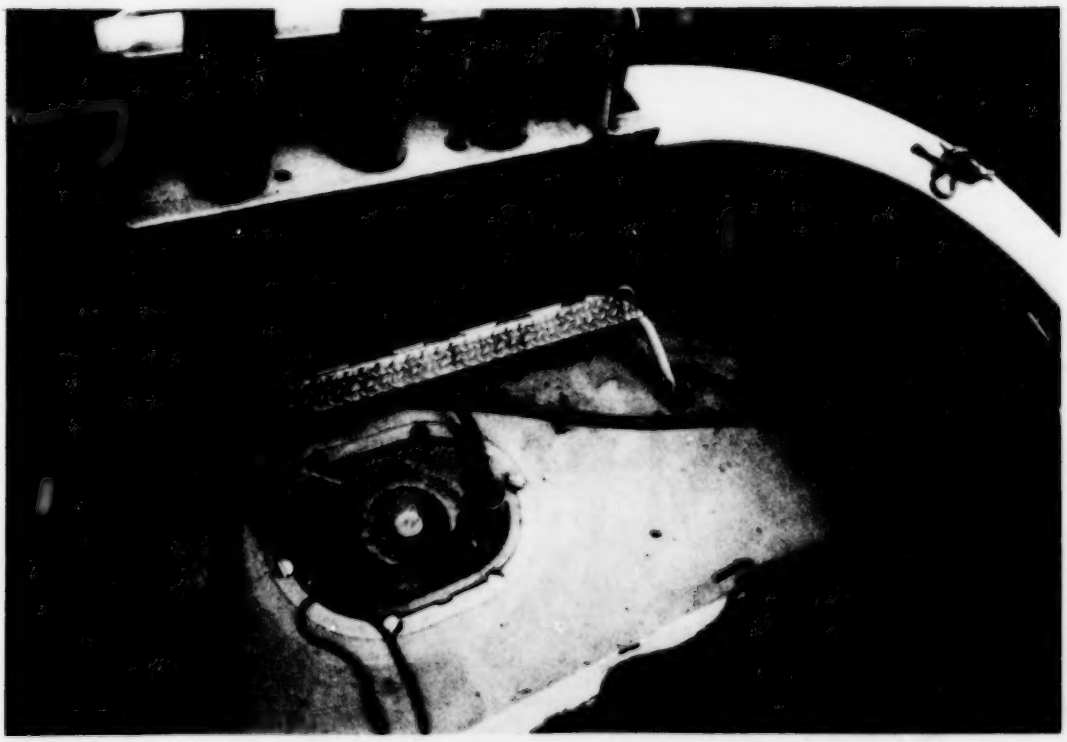


Port side of afterdeck viewed from cockpit.

Vue de cockpit démontrant côté bâbord du pont arrière.



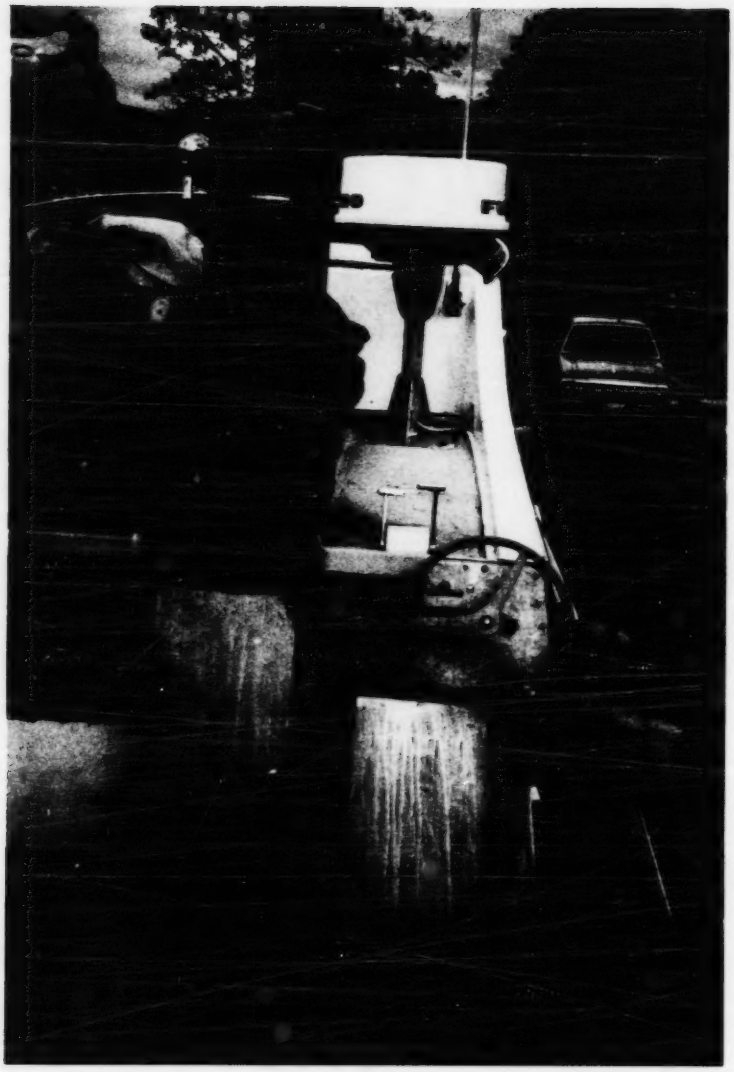
Flying bridge control station.
Poste de commande du passavant.



Cockpit.

View from stern showing lifeboat, gillnet drum, guard rails and stack, etc.
Note: one gillnet stowed on flying bridge.

Vue de l'arrière démontrant le canot de sauvetage, le tambour du filet maillant, les garde-corps et la cheminée, etc.
Nota: un filet maillant arrimé sur le passavant.



Starboard side of cabin showing control station and engine exhaust stack and vent.

Côté tribord de la cabine démontrant le poste de commande, le tuyau d'échappement et la ventilation.